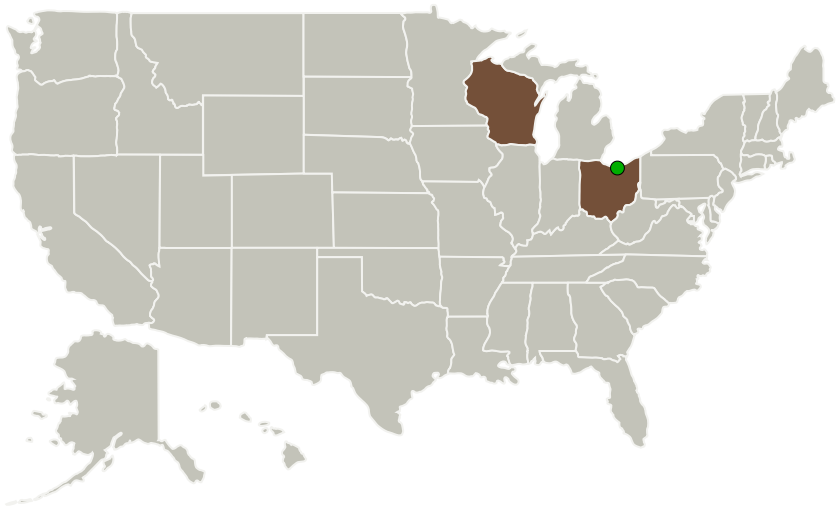
Acoustic Resonance Reaction Control Thruster (ARCTIC), Phase I

Completed Technology Project (2013 - 2013)

Project Introduction

ORBITEC proposes to develop and demonstrate the innovative Acoustic Resonance Reaction Control Thruster (ARCTIC) to provide rapid and reliable in-space impulse without the use of toxic hypergols, delicate catalyst beds, or cumbersome spark systems. The ARCTIC thruster will exceed current reliability standards, reduce RCS complexity, and provide system-level benefits by minimizing weight, decreasing power requirements, and improving serviceability. The Phase I work will focus on the development and testing, both at sea level and vacuum conditions, of a prototype ARCTIC thruster, as well as the design of flight-weight ARCTIC thruster for Phase II implementation.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Sierra Nevada Corporation(SNC)	Lead Organization	Industry Women-Owned Small Business (WOSB)	Sparks, Nevada
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

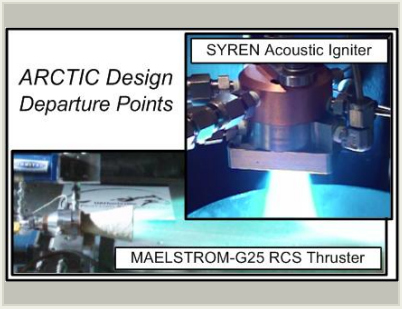


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Table of Contents

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Primary U.S. Work Locations	
Ohio	Wisconsin

Project Transitions

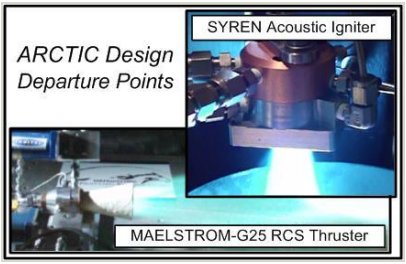
May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137942)*

Images



Project Image
Acoustic Resonance Reaction Control Thruster (ARCTIC)
(https://techport.nasa.gov/image/126299)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Sierra Nevada Corporation (SNC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

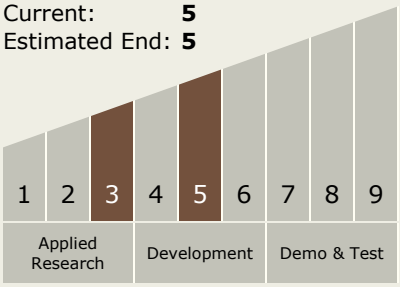
Carlos Torrez

Principal Investigator:

Scott Munson

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.3 Cryogenic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System